Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

Claims 1-19 (Cancelled)

(Withdrawn) 20. A method of employing a fill tube assembly to transfer molten metal into a casting mold, said method comprising the steps of:

providing a casting mold having a fill tube socket and a plurality of fastener-receiving apertures;

providing a fill tube assembly including a fill tube with a tapered flange and a clamping assembly structured to maintain a seal between said fill tube and said casting mold while accommodating dimensional variations, said clamping assembly including at least a gasket, a tapered load ring, a clamping plate with a plurality of fastener-receiving openings corresponding with the fastener-receiving apertures of said casting mold, and a plurality of fasteners;

inserting said fill tube into said fill tube socket, with said gasket disposed between said fill tube and said casting mold;

sliding said tapered load ring over said fill tube to engage said tapered flange thereof;

sliding said clamping plate over said fill tube onto said load ring;

providing a pre-load gap between said clamping plate and said casting mold, said pre-load gap sized to compensate for said dimensional variations;

inserting said plurality of fasteners through said fastener-receiving openings in said clamping plate and into said fastener-receiving apertures in said casting mold; and

tightening each of said plurality of fasteners, thereby tightening said clamping plate against said load ring which sealingly compresses said fill tube against said casting mold while narrowing said pre-load gap between said clamping plate and said casting mold, said tightened clamping plate accommodating said dimensional variations.

(Withdrawn) 21. The method of claim 20 further comprising:

sizing said pre-load gap between said clamping plate and said casting mold at a dimension at least as large as the aggregate of all predetermined said dimensional variations in said fill tube.

(Withdrawn) 22. The method of claim 20 further comprising:

providing a threaded dimensional compensating ring as an additional part of said clamping assembly, said threaded dimensional compensating ring received within a threaded aperture in said clamping plate and being structured to engage said load ring when tightened;

tightening said threaded dimensional compensating ring thereby compressing said fill tube against said casting mold while accommodating said dimensional variations; and

tightening said clamping plate, which narrows said pre-load gap, in order to further accommodate said dimensional variations.

(Newly added) 23. A fill tube assembly comprising:

a tubular member comprising a first end for receiving molten metal, a second end having a tapered flange for engaging the casting mold, and an intermediate portion extending therebetween; and

a clamping assembly comprising an annular ring disposed over the fill tube and having a surface engaging the tapered flare of the second end of the tubular member, and a clamping plate fastened to the casting mold to induce a compressive force on the annular ring.

(Newly added) 24. The fill tube assembly of Claim 23, wherein the intermediate portion has a generally uniform cross section.

(Newly added) 25. The fill tube assembly of Claim 23, wherein the clamping assembly is structured to maintain a substantially leak-proof seal between the fill tube and the casting mold while accommodating dimensional variation.

(Newly added) 26. The fill tube assembly of Claim 23, wherein the clamping assembly comprises an annular gasket disposed between the tapered flange of the second end of the tubular member and the casting mold.

(Newly added) 27. The fill tube assembly of Claim 26, wherein the clamping plate having a structure to bias the annular ring against the tapered flange thereby distributing a uniform compressive load against the casting mold;

(Newly added) 28. The fill tube assembly of Claim 25 further comprising a preload gap between the clamping plate and the casting mold, wherein the preload gap is sized to accommodate the dimension variation, wherein as the clamping plate is fastened to the casting mold the pre load gap is substantially eliminated.

(Newly added) 29. The fill tube assembly of Claim 23 further comprising at least one fastener to fasten the clamping plate to the casting mold, wherein the casting mold further includes a plurality of fastener receiving apertures and a fill tube socket, wherein said second end of the tubular member is structured for insertion to said fill tube socket.

(Newly added) 30. The fill tube assembly of Claim 23 further comprising:

the tapered flange comprising a mold engaging face and an exterior face, wherein the exterior face is tapered; and

the surface of the annular ring for engaging the tapered flange is tapered corresponding to the exterior face of the tapered flange.

(Newly added) 31. The fill tube assembly of Claim 30 wherein the taper of the tapered flange is at an angle of about 15 degrees to about 85 degrees relative to the horizontal plane of the exterior face.

(Newly added) 32. The fill tube assembly of Claim 23 wherein the clamping plate further comprises a threaded aperture and a threaded ring; wherein the threaded ring is tightened against the annular load ring to establish a compressive load between said load

ring and the tapered flange of the second end of the tubular member.

(Newly added) 33. A casting apparatus comprising:

a casting mold including a fill tube socket and a plurality of fastener receiving apertures;

a fill tube having a receiving end, a mold-engaging end and an intermediate portion extending therebetween, the mold-engaging end having a tapered flange radially extending therefrom, the remainder of the fill tube having a generally uniform cross-section; and

a clamping assembly comprising:

an annular gasket disposed within the fill tube socket between the tapered flange of the fill tube and the casting mold;

an annular load ring disposed over the fill tube and having a taper corresponding to the tapered flange of the mold engaging end of the fill tube;

a clamping plate disposed over the annular load ring, the clamping plate including a plurality of fastener-receiving openings corresponding to the fastener-receiving apertures in the casting mold.

(Newly added) 34. The casting apparatus of claim 33 wherein the clamping plate is structured to be initially spaced apart from the casting mold, in order to form a pre-load gap therebetween wherein the pre-load gap is structured to narrow when the plurality of fasteners are tightened.

(Newly added) 35. The casting apparatus of claim 33 further comprising:
a threaded aperture in the clamping plate; and
a threaded ring corresponding to the threaded aperture in the clamping plate structured to be rotated to tighten against the annular load ring in order to produce a compressive load between the annular load ring and the tapered flange.

(Newly added) 36. The casting apparatus of claim 33 wherein said fill tube flange includes a mold-engaging face and a non-engaging face; wherein the non-engaging face of said flange is tapered; wherein said annular load ring includes a flange-engaging face and a non-engaging face; and wherein said flange-engaging face is tapered to correspond with the tapered non-engaging face of said flange.

(Newly added) 37. The casting apparatus of claim 33 wherein the tapers of the non-engaging face of the fill tube and the flange-engaging face of the annular load ring are the same.

(Newly added) 38. The casting apparatus of claim 33 wherein the tapered flange-engaging face of the load ring is structured to self-center on the tapered non-engaging face of the flange, thereby distributing a uniform compression load on the flange when the clamping plate is tightened.